

Improving Airborne Data Management

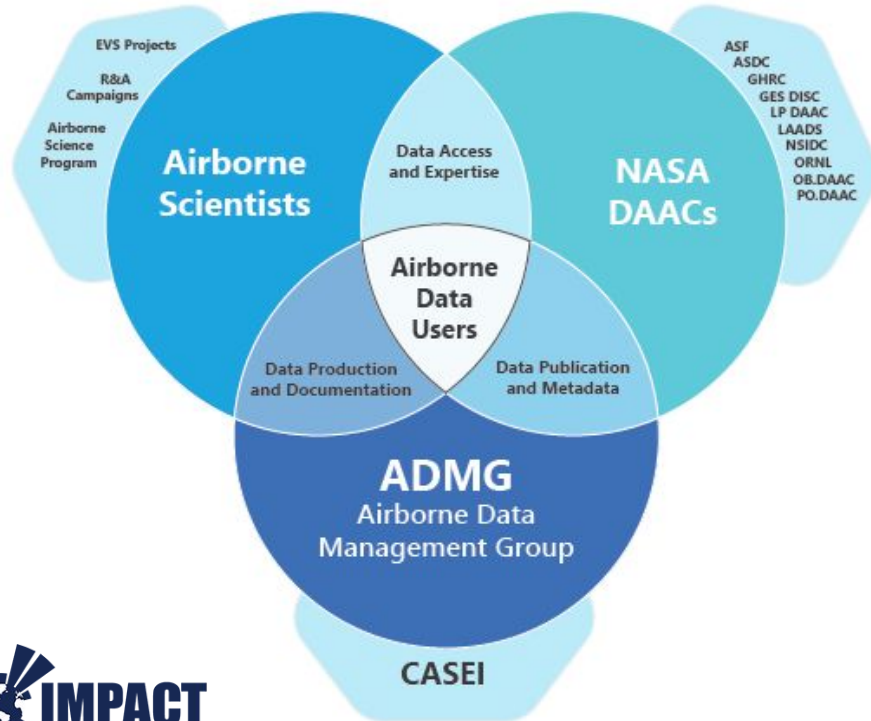
December 1, 2022
S-MODE Open Data Workshop

Deborah Smith

ESDS Airborne Data Management Group (ADMG)
NASA IMPACT / MSFC / Univ. of Alabama in Huntsville



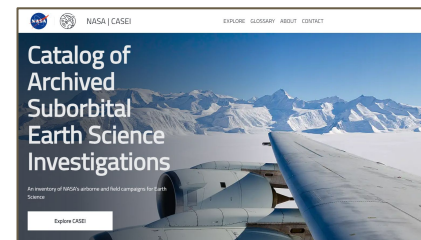
NASA's Airborne Data Management Group (ADMG)



- The **ADMG** was established in 2018 to respond to the need for better stewardship of airborne and field data at NASA.
- ADMG is part of the Interagency Implementation and Advanced Concepts Team (IMPACT) at NASA MSFC.

ADMG Primary Tasks

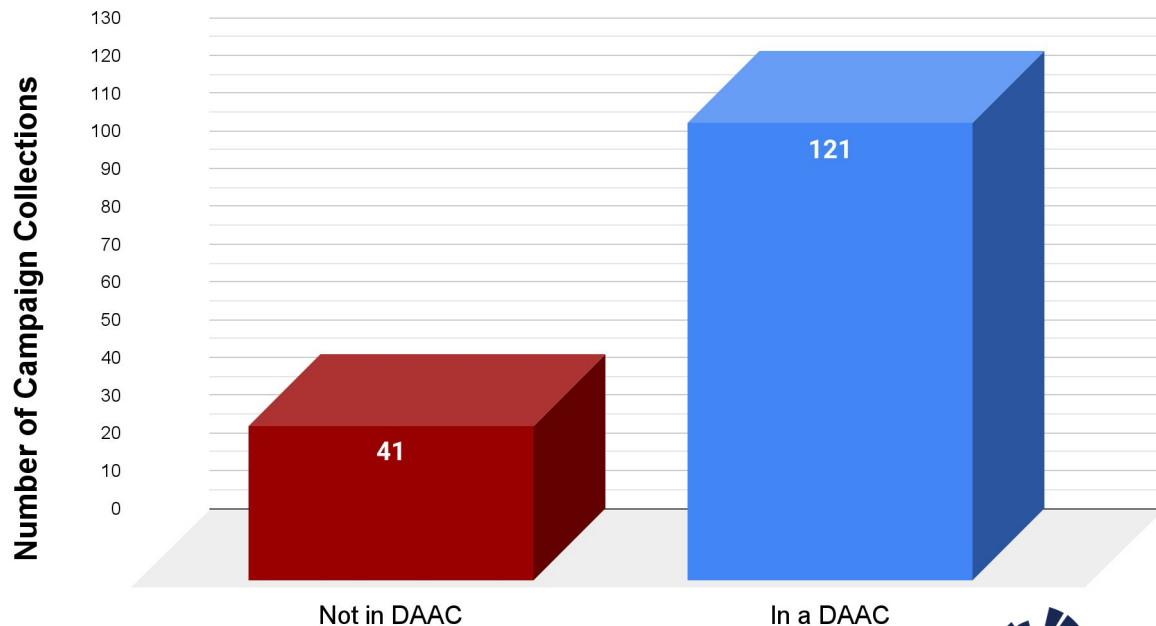
- Take a **full assessment** of NASA Airborne and Field Earth Science data
- Construct a public, centralized, **metadata-rich inventory** of airborne and field campaigns, platforms, instruments with data product access
- Maintain a **knowledge center** containing important information, links to airborne tools, document access and example use cases
- Improve **communication and understanding** between DAACs, campaign investigators, and other stakeholders
- **Develop systematic approaches** and recommended practices to bring **consistency** to airborne and field data stewardship



Move Historical Data to DAACs

- ADMG facilitates placement of airborne and field data at NASA DAACs
- **Currently 25%** of known campaigns have data **not in a DAAC**
- Make airborne and field **data open to everyone**

Total Known Campaigns as of October 2022: 162



Data Archeology and Data Rescue

- 30 years of **ER-2 air photos** recovered from NASA Ames. Currently at Johnson Space Center for digitization
- Decades of files and binders reviewed to build a full history of the **P-3 flights**
- NASA **DC-8 onboard videos** (nadir, forward, sideview) from GTE campaigns (1979-1988) to be recovered

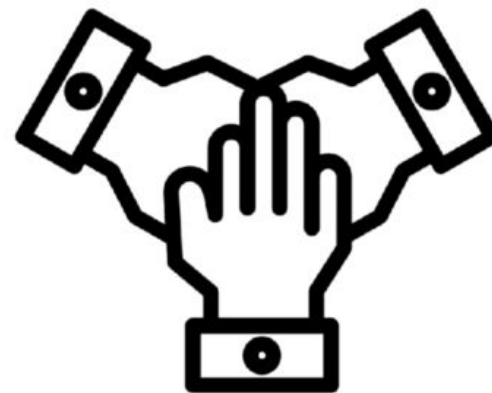


All images by ADMG team members

Community Support

ADMG facilitates **improved communication and understanding** between campaign investigators, DAAC personnel, data users, and other stakeholders both within and outside of NASA

- Improve **consistency** in policies and procedures and aiding good **communication** throughout the project lifetime
- **Airborne data workshop** (Mar 2022) which helped to bring data user and data producer issues to light (recordings [online](#))



Created by Khoirin from the Noun Project

What Does this Mean for S-MODE?



ADMG provides assistance with:

- Supporting the project before PODAAC was assigned to the team, ensuring focus on a **comprehensive data management plan**
- Ensuring ongoing **effective communication** and understanding between S-MODE and PODAAC, meeting the needs of data users and the science team
- Gathering **detailed S-MODE metadata** for inclusion in the ADMG inventory, so users can easily find S-MODE information in the future

CASEI: The Catalog of Archived Suborbital Earth Science Investigations

- **Detailed information** and data access for airborne and field campaigns
- Explore and discover the **highly-linked** web-based user interface.
- Many **different ways to search** through the detailed information and links

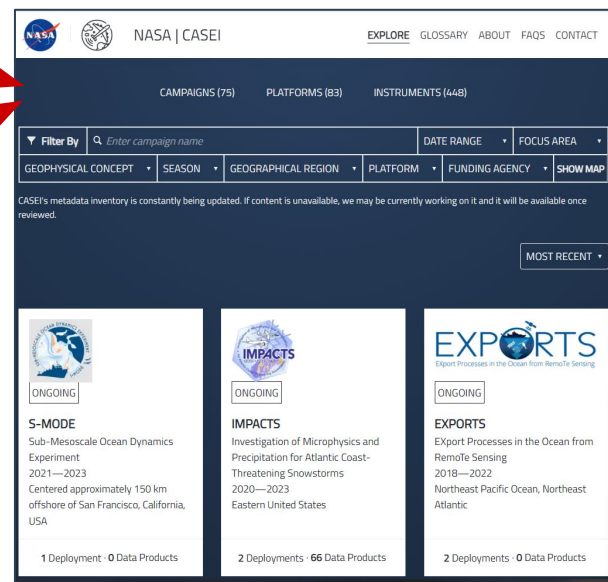
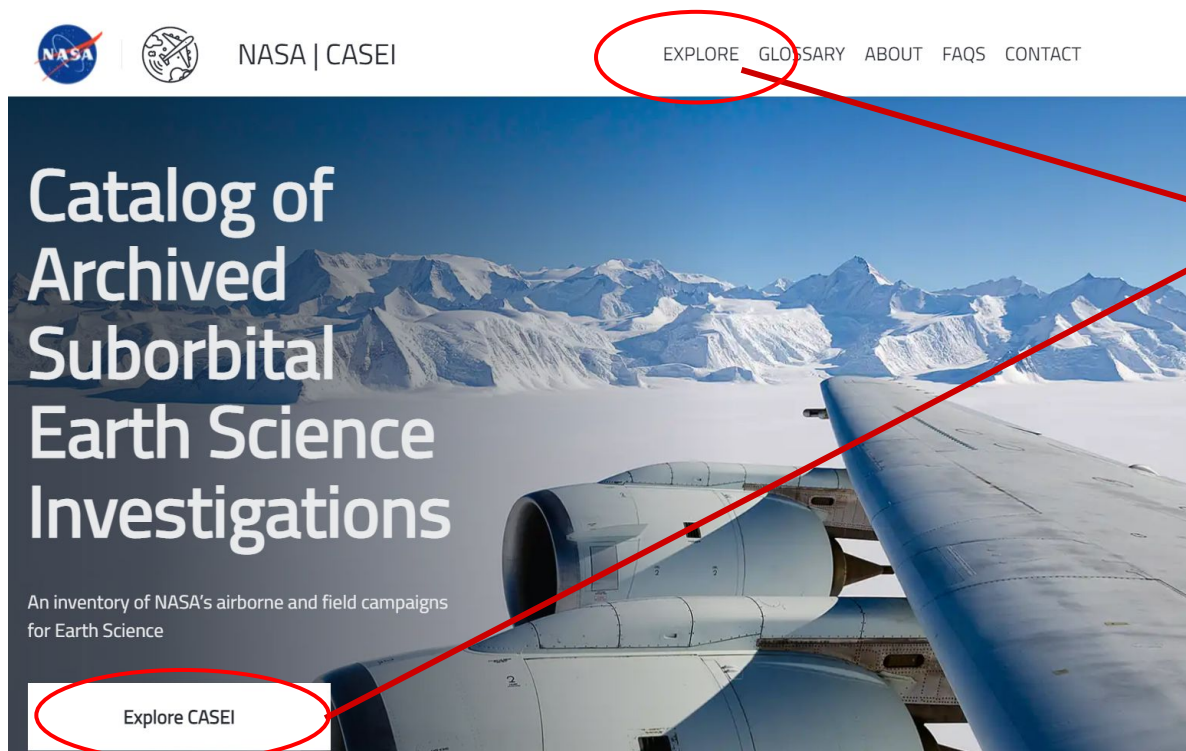


CASEI is developed by ADMG with help from Development Seed and other IMPACT team members

<https://impact.earthdata.nasa.gov/casei/>



CASEI: The Catalog of Archived Suborbital Earth Science Investigations



<https://impact.earthdata.nasa.gov/casei/>



CAMPAIGNS (81)

PLATFORMS (89)

INSTRUMENTS (466)

Filter By DATE RANGE FOCUS AREA

GEOPHYSICAL CONCEPT SEASON GEOGRAPHICAL REGION PLATFORM FUNDING AGENCY SHOW MAP

CASEI's metadata inventory is constantly being updated. If content is unavailable, we may be currently working on it and it will be available once reviewed.

MOST RECENT



ONGOING

S-MODE

Sub-Mesoscale Ocean Dynamics
Experiment

2021—2023

Centered approximately 300 km
offshore of San Francisco, California,
USA

2 Deployments · 10 Data Products



ONGOING

IMPACTS

Investigation of Microphysics and
Precipitation for Atlantic Coast-
Threatening Snowstorms
2020—2023

Eastern United States

2 Deployments · 66 Data Products



ONGOING

EXPORTS

Export Processes in the Ocean from
RemoTe Sensing

2018—2022

Northeast Pacific Ocean, Northeast
Atlantic

2 Deployments · 0 Data Products

**Sub-Mesoscale Ocean
Dynamics Experiment**

2

141

10

The Campaign

The Sub-Mesoscale Ocean Dynamics Experiment (S-MODE) is a multi-year, multi-agency effort to study the ocean's response to atmospheric forcing at the sub-mesoscale. The experiment is centered approximately 300 km offshore of San Francisco, California, USA.

2021—2023

Centered approximately 300 km offshore of San Francisco, California, USA

2 Deployments · 10 Data Products

Additional Notes

Regulations

2021—2023

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Sub-Mesoscale Ocean Dynamics Experiment

Global Water & Energy Cycle, Weather

2 DEPLOYMENTS
141 COLLECTION POINTS
10 DATA PRODUCTS

S-MODE Overview Focus Platforms & Instruments Timeline Data Program Info

FEEDBACK

The Campaign

The Sub-Mesoscale Ocean Dynamics Experiment (S-MODE) is an ongoing NASA campaign that focuses on global-scale ocean eddy and fronts. S-MODE has completed one deployment at the coast of San Francisco during the boreal fall of 2021 with future deployments planned. Various instruments were deployed with different oceanic instruments including the Drifter Sustainability Support (DSS), Multi-Scale Observing System of the Ocean Surface (MOSOS), and Modular Aerial Sensing System (MASS). In situ measurements were obtained through autonomous underwater vehicles (AUVs), buoys, and ship-based instruments. S-MODE is one of the OGC-3 programs.

MISSION DATES
2021-10-19 — 2023-12-01

MISSION OF STUDY
Boreal Fall

REGION
Coastal, approximately 300 km offshore of San Francisco, California, USA

SPECIAL BOARDS
16 AUVs
5 DSS VEs
30 DSS VEs
5 DSS VEs

Additional Notes

Repositories

Physical Oceanography BASC (NO DACC)

Focus

FOCUS AREA

GLOBAL WATER & ENERGY CYCLE

GEOPHYSICAL CONCEPTS

Mesoscale Connection & Source
Ocean Properties & Processes

FOCUS PHENOMENA

THUNDERSTORM DYNAMICS
VERTICAL TRANSPORT
EDDIES

SUPPORTED NASA MISSIONS

Platforms & Instruments

TWIN OTTER | D-200 | DRIFTING BUOY | CAMPAIGN D | WAVE GLIDERS | GLIDERBOTS | OCEANUS | G-III | SEAGLE



Twin Otter
C-147A Hercules (C-147A) Twin Otter

11 Campaigns - 47 Instruments

Modular Aerial Sensing System (MASS)

Timeline

3 Deployments



Data Products

Filter data products from the campaign by specific platforms or instruments.

PLATFORMS + INSTRUMENTS +

S-MODE SHIPBOARD CONDUCTIVITY, TEMPERATURE, AND DEPTH MEASUREMENTS VERSION 1
(P-10.000/10.000/10.000)

PLATFORMS
B/V Oceanus
INSTRUMENTS
Conductivity, Temperature, and Depth

S-MODE SHIPBOARD ACOUSTIC DOPPLER CURRENT PROFILER MEASUREMENTS VERSION 1
(P-10.000/10.000/10.000)

PLATFORMS
B/V Oceanus
INSTRUMENTS
Acoustic Doppler Current Profiler

S-MODE SHIPBOARD THERMAL/HEATFLUX AND METEOROLOGICAL MEASUREMENTS VERSION 1
(P-10.000/10.000/10.000)

PLATFORMS
B/V Oceanus
INSTRUMENTS
Coastal Atmospheric Data

Program Info



FLYING AGENCY
NASA Earth Venture Suborbital-3 Program

FLYING PROGRAM
Earth Venture Suborbital-3 Program

FLYING PROGRAM (EDS)
Ocean Tugs

PRINCIPAL INVESTIGATOR
Tom Rienecker

DATA MANAGER / TECHNICAL CONTACT
Tom Rienecker

NASA DATA REPOSITORY
Currently unavailable

PRINTER ORGANIZATIONS
Currently unavailable

OVERVIEW PUBLICATION
Currently unavailable

NASA | CASEI

NASA CASEI is a component of the country's information system that contains information about all systems and their components as well as their instruments and data products.

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17 ESDS Vectors

NASA National Aeronautics and Space Administration
NASA Official Rule / Regulation



S-MODE

Overview Focus Platforms & Instruments Timeline Data Program Info

FEEDBACK

Filter data products from this campaign by specific platforms or instruments.

PLATFORMS ▾

INSTRUMENTS ▾

S-MODE SHIPBOARD CONDUCTIVITY, TEMPERATURE, AND DEPTH MEASUREMENTS VERSION 1

[10.5067/SMODE-RVCTD](#)

PLATFORMS

R/V Oceanus

INSTRUMENTS

Conductivity, Temperature, and Depth

S-MODE SHIPBOARD ACOUSTIC DOPPLER CURRENT PROFILER MEASUREMENTS VERSION 1

[10.5067/SMODE-RVADC](#)

PLATFORMS

R/V Oceanus

INSTRUMENTS

Acoustic Doppler Current Profiler

S-MODE SHIPBOARD THERMOSALINOGRAPH AND METEOROLOGY MEASUREMENTS VERSION 1

PLATFORMS

R/V Oceanus

Other DAACs ▾



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S-MODE Shipboard Conductivity, Temperature, and Depth Measurements Version 1 (SMODE_LX_SHIPBOARD_CTD_V1)

SHARE THIS PAGE

Information Coverage Data Access Documentation Citation

Version

1

Processing Level

NA

Start/Stop Date

2021-Aug-01 to Present

Short Name

SMODE_LX_SHIPBOARD_CTD_V1

Description

This dataset contains shipboard conductivity, temperature, and depth (CTD) measurements taken during the Sub-Mesoscale Ocean Dynamics Experiment (S-MODE) pilot campaign conducted approximately 300 km offshore of San Francisco over two weeks in October 2021. S-MODE aims to understand how ocean dynamics acting on short spatial scales influence the vertical exchange of physical and biological variables in the ocean. The CTD rosette is cast from the R/V Oceanus where it records ocean temperature, conductivity, and pressure as it descends to depth and then returns to the surface. Data is available in netCDF format.

DOI

10.5067/SMODE-RVCTD

Measurement

OCEANS > SALINITY/DENSITY
OCEANS > OCEAN OPTICS > ATTENUATION/TRANSMISSION
OCEANS > OCEAN OPTICS > PHOTOSYNTHETICALLY ACTIVE RADIATION
OCEANS > OCEAN CHEMISTRY > OXYGEN



CLOUD ENABLED

Status: ACTIVE

Short Name:

SMODE_LX_SHIPBOARD_CTD_V1

Collection Concept ID:

C2110184927-POCLOUD

Spatial Coverage:

N: 38.1° S: 36.3°
E: -122.9° W: -125.4°

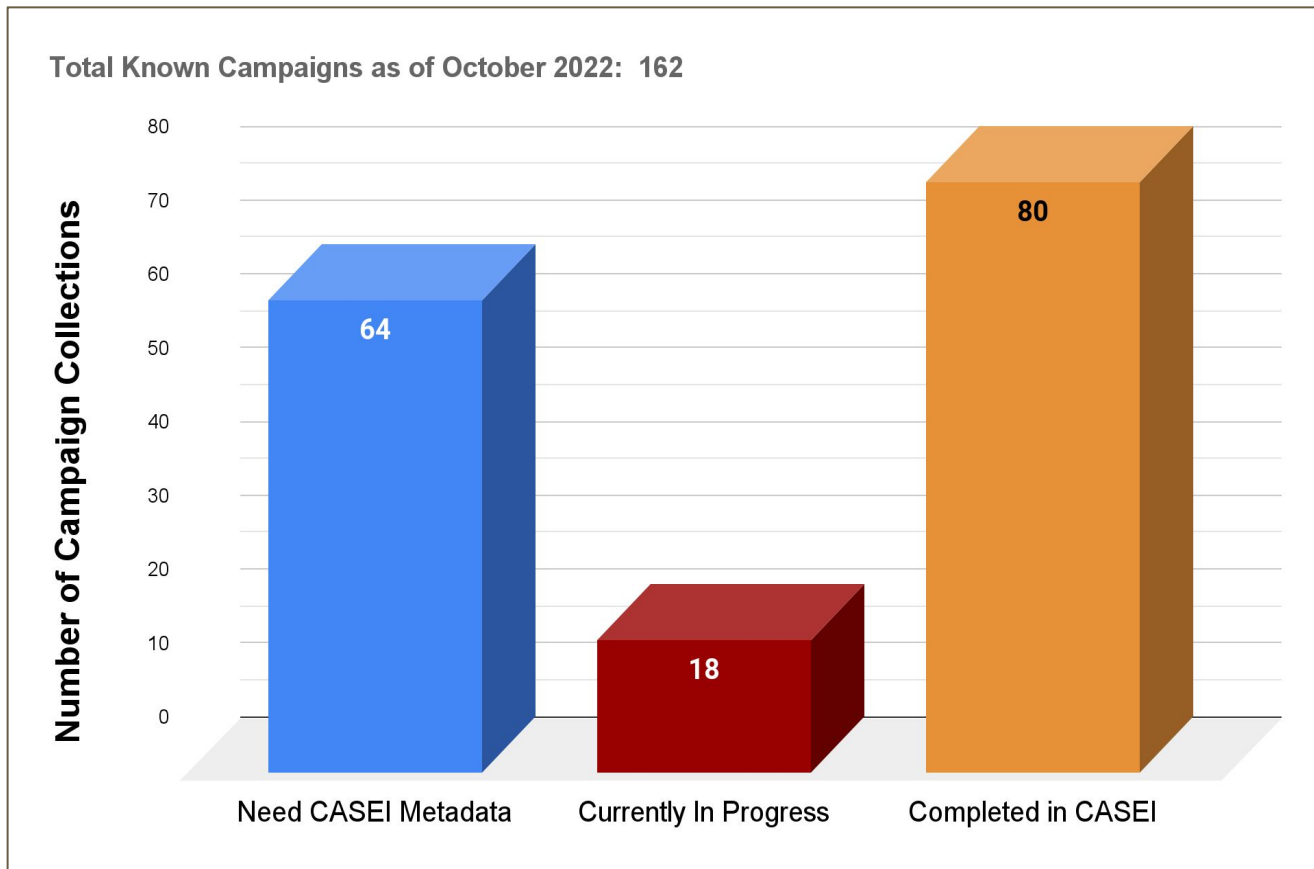
Access:

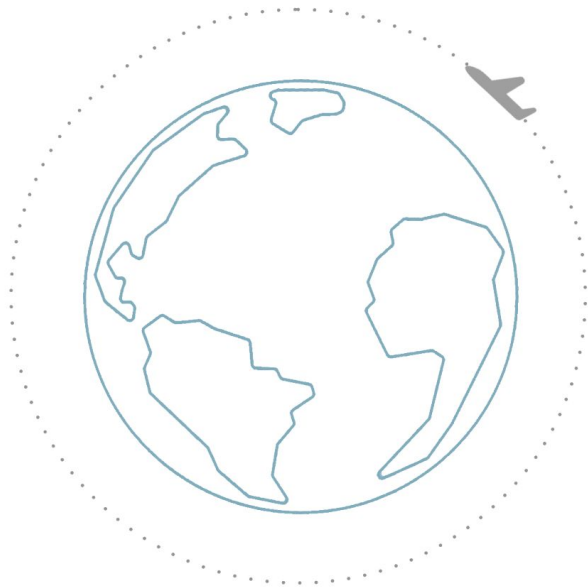
- Browse Granule Listing
- Search Granules

Capabilities:

Download Subset

CASEI: The Catalog of Archived Suborbital Earth Science Investigations





For a CASEI demonstration...
If you have historical data needing a DAAC...
Or if you have any questions about ADMG...

contact deborah.smith@uah.edu



NASA | CASEI

Explore CASEI: <https://impact.earthdata.nasa.gov/casei/>

ADMG is supported by NASA Grant 80MSFC22M004 as part of the Interagency Implementation and Advanced Concepts Team (IMPACT).

